

REMARKS

Claims 1-15 are pending in the present application. Claims 1 and 10 have been amended. Claim 6 has been canceled without prejudice or disclaimer. Support for the amendments can be found throughout the specification and claims as originally filed. More particularly, support for the amendment to Claims 1 and 10 can be found in, for example, Paragraph [0011] of the specification as published. No new matter is added by the present amendments. Entry of the amendments to the claims and reconsideration is respectfully requested.

Rejection Under 35 U.S.C. §102

On page 2 of the Office Action, Claims 1-2 and 10 were rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Li (PCT Publication No. WO 00/19837). According to the Examiner, Li discloses a gum base composition comprising biodegradable ingredients as recited by the instant claims. To the extent the rejection is applicable to the amended set of claims, Applicants respectfully traverse the rejection.

Without acquiescing in the rejection, to expedite prosecution Applicants have amended independent Claims 1 and 10 to clarify that the other lactic acid polymers have a glass transition temperature (Tg) of 55 to 80°C.

Li discloses a racemic mixture of poly(lactic acid) polymer, *i.e.*, poly(D,L-lactic acid), having a Tg of 50°C, used in a chewing gum composition. *See*, for example, Li at page 6, lines 10-31. The Examiner acknowledges that Li does *not* disclose a gum base composition comprising a lactic acid polymer having a Tg of 55 to 80°C (*see*, page 5 of the Office Action). Furthermore, as discussed in detail below, Li does not teach or suggest a gum base composition comprising a lactic acid polymer having a Tg of 55 to 80°C. As such, Li does not anticipate amended Claims 1 and 10. Dependent Claim 2 is patentable for at least the same reasons that Claim 1 is patentable, and is also patentable for the unique combination of subject matter that it recites. Withdrawal of the rejection under 35 U.S.C. § 102(b) is respectfully requested.

Rejection Under 35 U.S.C. § 103

On page 4 of the Office Action, Claims 3-9 and 11-15 were rejected under 35 U.S.C. § 103(a) for alleged obviousness over Li. To the extent the rejection is applicable to the amended set of claims, Applicants respectfully traverse the rejection.

As discussed above, Applicants have amended independent Claims 1 and 10 to clarify that the other lactic acid polymers have a Tg of 55 to 80°C. Applicants have canceled Claim 6. Claims 3-5 and 7-9 depend from Claim 1, and Claims 11-15 depend from Claim 10.

Li discloses a racemic mixture of poly(lactic acid) polymer, *i.e.*, poly(D,L-lactic acid), having a Tg of 50°C, used in a chewing gum composition. *See*, Li at page 6, lines 10-31. Li discloses that the poly(D,L-lactic acid) form is amorphous, in contrast to the poly-L-lactic acid form, which has a Tg of 58°C and is rigid at room temperature. *See*, Li at page 6, lines 17-20. The Examiner acknowledged that Li does not disclose a gum base composition comprising a lactic acid polymer having a Tg of 55 to 80°C (*see*, page 5 of the Office Action). However, the Examiner found that it would have been obvious to have optimized, by routine experimentation, the Tg of the lactic acid polymers in the gum base of Li to obtain desired disintegratability of the gum.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981 (CCPA 1974). Applicants respectfully assert that a *prima facie* obviousness has not been shown because the combination of references cited does not teach or suggest all of the claim limitations. Further, in the Supreme Court's recent decision in *KSR International Co. v. Teleflex Inc.*, 127 S. Ct. 1727 (2007), the Court repeatedly emphasized the value of determining if there is any "reason to combine" the various teachings in the art. The Court noted that "[a] patent composed of several elements is not proved obvious merely by demonstrating that each element was, independently, known in the prior art." *KSR* at 1741.¹ Thus, the Court has made it abundantly clear that some reason to combine the various elements must be present in order to establish a *prima facie* case of obviousness.

Without the benefit of Applicants' disclosure, there would be no reason for one of skill in the art to modify the disclosure of Li in order to obtain a gum base composition comprising "lactic acid polymers having a glass transition temperature (Tg) of 55 to 80°C" as recited in

¹ The Court also noted that "it can be important to identify a reason that would have prompted a person of ordinary skill in the art to combine the elements as the new invention does." *KSR* at 1741. Additionally, the Court noted that "inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known." *Id.*

amended Claims 1 and 10. At no point does Li teach or suggest using a lactic acid polymer other than poly(D,L-lactic acid). In fact, Li *teaches away* from use of lactic acid polymers having higher Tgs in a chewing gum composition. For example, Li states “[s]ince the common form, PLLA [poly-L-lactic acid], is highly crystalline and has a glass transition temperature (Tg) around 58°C, it is rigid at room temperature and, *not suitable* as a chewing gum masticatory ingredient.” *See*, Li at page 6, lines 17-19, emphasis added. Li discloses that both poly-D-lactic acid and poly-L-lactic acid are highly crystalline while the copolymers poly(D,L-lactic acid) are much less crystalline or even amorphous. *See*, Li at page 6, lines 12-13. Li further states that “[i]t has also been found that poly(D,L-lactic acid) degrades much faster than crystalline PLLA.” *See*, Li at page 6, lines 22-23. Thus, on the whole, Li suggests that increased Tg and crystallinity are undesirable in lactic acid polymers for use in a biodegradable chewing gum base.

Based on the teachings of Li, one of skill in the art would *not* have used lactic acid polymers having a Tg of higher than about 50°C. In particular, Li suggests that lactic acid polymers having a higher Tg have increased rigidity and crystallinity, which is not suitable for chewing gum masticatory ingredients. As is known in the art, Tg is the temperature at which an amorphous solid, such as a polymer, becomes brittle on cooling, or soft on heating. The IUPAC Compendium of Chemical Terminology, 66, 583 (1997). Based on Li’s teachings, a higher Tg and therefore higher crystallinity would result in *lower* disintegratability of the gum. *See*, Li at page 6, lines 22-23.

The PTO characterizes the differences between the claimed invention and the prior art as mere “optimization” of a “result-effective variable.” However, this generalization is not only incorrect, but is legally insufficient to establish obviousness under Section 103 when it flies in the face of a clear teaching away. The generalization cannot be used a substitute for an explanation of why a person of ordinary skill in the art would have chosen to increase Tg, when Li teaches that higher Tg values are undesirable, and why such a path would have been chosen if it was believed to result in lower disintegratability of the gum.

Thus, a gum base composition comprising lactic acid polymers having higher Tgs, such as “lactic acid polymers having a glass transition temperature of 55 to 80°C” as recited in amended Claims 1 and 10 is *taught away* by Li, because Li suggests a higher Tg and therefore higher crystallinity would result in *lower* disintegratability and undesirable masticatory properties

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of the gum. As such, the cited reference, either alone or in combination with the knowledge of the skilled artisan, does not teach or suggest all of the claim limitations. Thus, Claims 3-5 and 7-9, which depend from Claim 1, and Claims 11-15, which depend from Claim 10, are not obvious.

For at least the reasons presented above, the claims are nonobvious over the prior art. Withdrawal of the § 103(a) rejection is respectfully requested.

No Disclaimers or Disavowals

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, the Applicants are not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. The Applicants reserve the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that the Applicants have made any disclaimers or disavowals of any subject matter supported by the present application.

Conclusion

In view of the foregoing amendment and remarks, Applicants respectfully submit that the present application is in condition for allowance and respectfully request the same. If any issues remain, the Examiner is cordially invited to contact Applicants' representative at the number provided below in order to resolve such issues promptly.

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Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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AMEND

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